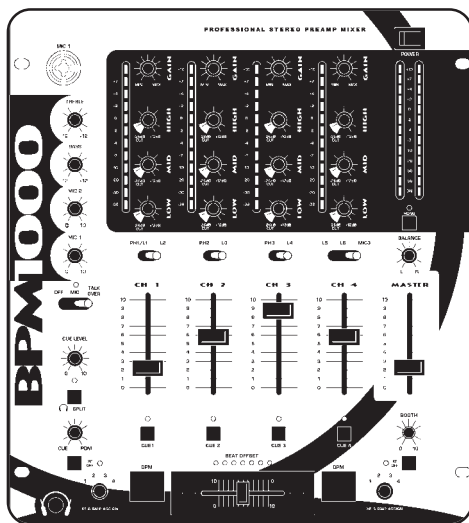




# **SERVICE manual**

# **BPM-1000**

## **Stereo Preamp Mixer**



### **CONTENT'S:**

<b>Connections &amp; Operations:</b> .....	<b>Page 2-5</b>
<b>Specifications:</b> .....	<b>Page 5</b>
<b>Parts Lists:</b> .....	<b>Page 5-7</b>
<b>PCBs:</b> .....	<b>Page 8-12</b>
<b>Schematics</b> .....	<b>Page 13-14</b>

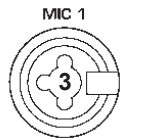


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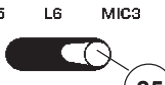
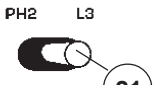
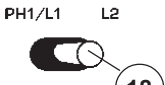
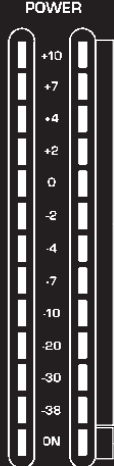


PROFESSIONAL STEREO PREAMP MIXER

BPM1000



Four channel gain and EQ sections, each with a gain knob (14), high (15), mid (16), and low (17) frequency sliders. Each EQ slider has a -26dB CUT and +12dB boost range.



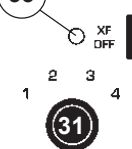
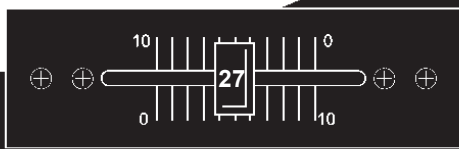
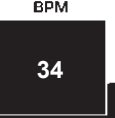
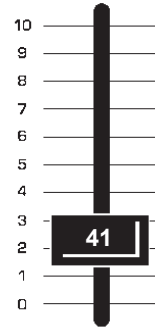
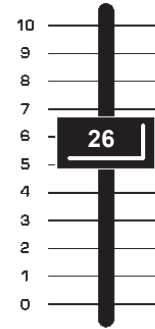
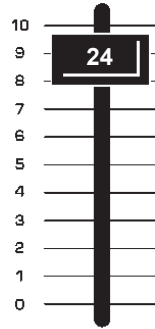
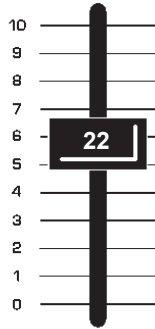
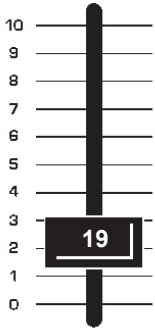
CH-1

CH-2

CH-3

CH-4

MASTER



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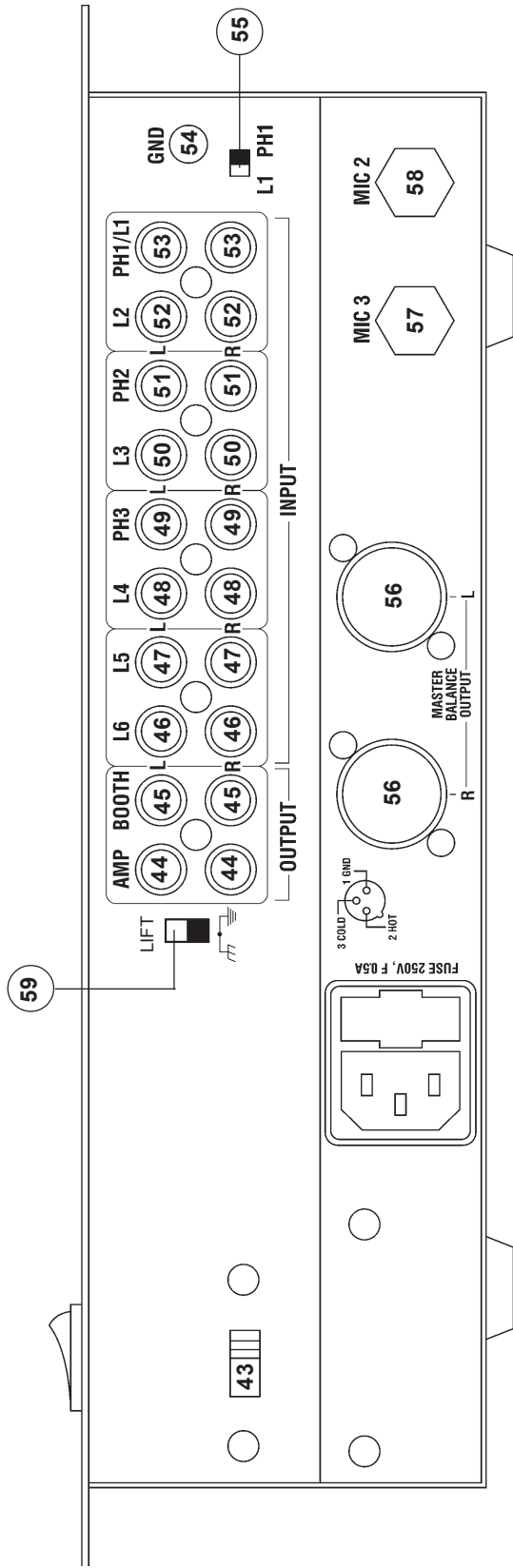
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## Connections

1. Before plugging in the power cord, make sure that the **VOLTAGE SELECTOR (43)** switch is set to the correct voltage.
- NOTE: This product is double insulated and not intended to be grounded.**
2. Make sure that the **POWER (1)** switch is in the off position. The **POWER LED (2)** will be off.
  3. The BPM-1000 is supplied with 2 sets of amp output jacks. The **BALANCED OUTPUT AMP (56)** jacks are used to connect to your main amplifier using standard XLR cables. We recommend using the balanced amp outputs if the cables to your amp are 25 feet or more. Balanced outputs have three separate conductors, two of which are signal (positive and negative) and one shield (ground). Pin 1 is ground (shield). Pin 2 is signal hot (positive). Pin 3 is signal cold (negative). The **OUTPUT AMP (44)** jacks are unbalanced and used to connect to your main amplifier. The **OUTPUT BOOTH (45)** jacks allow you to hook up an additional amplifier.
  4. The **MIC 1 (3)** input (found on the front panel) accepts a 1/4" or XLR connector. The **MIC 2 (58)** input and the **MIC 3 (57)** input (found on the rear panel) accept 1/4" connectors. All accept balanced and unbalanced microphones.
  5. On the rear panel are 1 stereo **PHONO/LINE (53)** input, 2 stereo **PHONO (49, 51)** inputs, and 5 stereo **LINE (46, 47, 48, 50, 52)** inputs. The **PHONO/LINE SWITCH (55)** enables you to set the (53) input to Phono or Line. The phono inputs will accept only turntables with a magnetic cartridge. A **GROUND SCREW (54)** for you to ground your turntables is located on the rear panel. The stereo line inputs will accept any line level input such as a CD player, a cassette player, etc.
  6. Headphones can be plugged into the front panel mounted **HEADPHONE (13)** jack.

## Using the Ground Lift Switch

Depending on your system configuration, sometimes applying the ground will create a quieter signal path. Sometimes lifting the ground can eliminate ground loops and hum to create a quieter signal path.

1. With the mixer on, listen to the system in idle mode (no signal present) with the ground applied (the **GROUND LIFT SWITCH (59)** in the bottom position).
2. **Then turn the power off before moving the GROUND LIFT SWITCH (59).** Lift the ground by moving the **GROUND LIFT SWITCH** to the top position, turn the power back on and listen to determine which position will provide a signal devoid of background noise and hum. Keep the **GROUND LIFT SWITCH** in the ground position if the noise level remains the same in either position.

**CAUTION: DO NOT TERMINATE THE AC GROUND ON THE POWER MIXER IN ANY WAY. TERMINATION OF THE AC GROUND CAN BE HAZARDOUS.**

## Operation

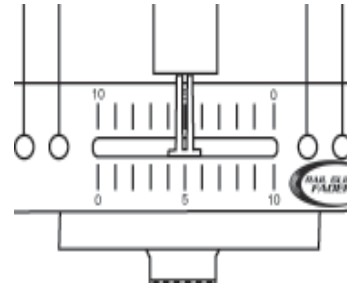
1. **POWER ON:** Once you have made all the equipment connections to your mixer, press the **POWER SWITCH (1)**. The power will turn on and the **POWER LED (2)** will glow.
2. **CHANNEL 1:** The **GAIN (14)**, **HIGH (15)**, **MID (16)**, and **LOW (17)** controls allow you to fully adjust the selected source. Switch # (18) allows you to select the **PHONO 1/LINE 1 (53)** or the **LINE 2 (52)** input. The **CHANNEL SLIDE (19)** controls the input level of this channel.
3. **CHANNEL 2:** The **GAIN (14)**, **HIGH (15)**, **MID (16)**, and **LOW (17)** controls allow you to fully adjust the selected source. Switch # (21) allows you to select the **PHONO 2 (51)** or the **LINE 3 (50)** input. The **CHANNEL SLIDE (22)** controls the input level of this channel.
4. **CHANNEL 3:** The **GAIN (14)**, **HIGH (15)**, **MID (16)**, and **LOW (17)** controls allow you to fully adjust the selected source. Switch # (23) allows you to select the **PHONO 3 (49)** or the **LINE 4 (48)** input. The **CHANNEL SLIDE (24)** controls the input level of this channel.
5. **CHANNEL 4:** The **GAIN (14)**, **HIGH (15)**, **MID (16)**, and **LOW (17)** controls allow you to fully adjust the selected source. Switch # (25) allows you to select the **LINE 5 (47)**, **LINE 6 (46)** or the **MIC 3 (57)** input. The **CHANNEL SLIDE (26)** controls the input level of this channel.

**NOTE: There is Low, Mid and High equalization for each channel with an extremely wide range of adjustment providing a smoother mix.**

**SUGGESTION: You can use the Cut Features on each channel to remove Low, Mid and/or High to create special effects.**

6. **CROSSFADER SECTION:** The **CROSSFADER (27)** allows the mixing of one source into another. The BPM-1000 features an assignable crossfader. The **ASSIGN (28, 31)** switches allow you to select which channel will play through each side of the crossfader. The **ASSIGN (28)** switch has 4 settings (1, 2, 3 or 4) and allows you to select channel 1, 2, 3 or 4 to play through the left side of the crossfader. The **ASSIGN (31)** switch has 4 settings (1, 2, 3 or 4) and allows you to select channel 1, 2, 3 or 4 to play through the right side of the crossfader. There are two **OFF (29, 32)** buttons for the crossfader. When the **OFF (29)** button is pressed, the left side of the crossfader will be inactive and the **OFF LED (30)** will light. When the **OFF (32)** button is pressed, the right side of the crossfader will be inactive and the **OFF LED (33)** will light. Using the **OFF** button, be sure to deactivate the crossfader before changing the **ASSIGN** setting. This will avoid any click or popping sound in your signal while you are changing the assign setting. The **CROSSFADER (27)** in your unit is removable and if the need arises can be easily replaced. Crossfader units are available in three varieties. Part # RF-45 (which is identical to the crossfader supplied with the mixer) has a 45 mm travel from side to side. Part # RF-30 is available with a 30 mm travel distance. Also available is the PSF-45 with a special curve designed for scratch mixing. Just purchase one of these crossfader units from your Gemini dealer and follow these instructions:

1. Unscrew the outside **FADER PLATE SCREWS (B)**. Do not touch the **INSIDE SCREWS (C)**.
2. Carefully lift the fader and unplug the **CABLE (D)**.
3. Plug the new fader into the cable and place it back in the mixer.
4. Screw the fader to the mixer.



7. **BPM DISPLAY:** There are **BPM DISPLAYS (34, 35)** for the two channels assigned to each side of the **CROSSFADER (27)**. They update approximately every beat and digitally display the Beats Per Minute allowing you to match the beats visually. **BPM DISPLAY (34)** reflects the Beats Per Minute of the channel assigned to the left side of the **CROSSFADER**, and **BPM DISPLAY (35)** reflects the Beats Per Minute of the channel assigned to the right side of the **CROSSFADER**.

**NOTE: A [- -] reading will appear on the BPM DISPLAY if the track has unclear beats. The [- -] reading will also appear if there is no signal present.**

8. The **BEAT OFFSET INDICATORS (36)** light when the tracks of the two channels assigned to the crossfader are within 11 BPMs of each other and display how aligned the beats of the two channels are. When the **RED** LEDs light, the beats are not aligned. When the **YELLOW** LEDs light, the beats are almost aligned. When the **GREEN** LED lights, the beats are aligned perfectly.

**NOTE: If the difference between the two channel's beats exceed 11 BPM, the BEAT OFFSET INDICATORS will not light.**

**SUGGESTION: You can use the BPM DISPLAYS to determine which tracks have similar or the same Beats Per Minute. When mixing two tracks with similar Beats Per Minute, you can use one source's pitch control to align the Beats Per Minute with the other source's BPM. The BPM DISPLAYS and the BEAT OFFSET INDICATORS update every beat and will reflect the change in BPM and indicate when the beats are aligned.**

**NOTE: Beat mixing is a skill that requires practice. Not every track has a strong beat, and beat mixing works best with tracks with clear and strong beats.**

9. **OUTPUT CONTROL SECTION:** The level of the **AMP OUT (44, 56)** is controlled by the **MASTER (41)** slide and the **BALANCE CONTROL (40)**. The **BOOTH (42)** control adjusts the level of the **BOOTH OUTPUT (45)**. HINT: The booth OUTPUT is used by some DJs to run monitor speakers in their DJ booth. You can also use it as a second ZONE or AMP output. Activating the **MONO (39)** button (the mono LED will light) makes the master output mono.
10. **TALKOVER SECTION:** The purpose of the talkover section is to allow the program playing to be muted so that the mic can be heard above the music. The **MIC/TALKOVER (9)** switch controls MIC 1 and MIC 2 and has three settings. When the **MIC/TALKOVER (9)** switch is in the left position, MIC 1 and MIC 2 and talkover are off. When the **MIC/TALKOVER (9)** switch is in the center position

MIC 1 and MIC 2 are on, the **MIC INDICATOR (8)** will glow, but talkover is off. When the **MIC/TALKOVER (9)** switch is in the right position, MIC 1 and MIC 2 and talkover will be on and the volume of all sources except the Mic inputs are lowered by 16 dB. The **TREBLE (4)** and **BASS (5)** controls allow you to fully adjust the tone of MIC 1 and MIC 2. **MIC 1 LEVEL (7)** controls the level of MIC 1. The **MIC 2 LEVEL (6)** controls the level of MIC 2.

11. CUE SECTION: By connecting a set of headphones to the **HEADPHONE (13)** jack, you can monitor any or all of the channels. Press the **CUE ASSIGN (20)** buttons for channels 1 - 4 to select the channel or channels to be monitored and their respective LED indicators will glow. Use the **CUE LEVEL (10)** control to adjust the cue volume without effecting the overall mix. By rotating the **CUE PGM PAN (12)** control to the left you will be able to monitor the assigned cue signal. Rotating to the right will monitor the PGM (program) output. Use the **CUE SPLIT (11)** button to split the signals from cue and program so that cue will be heard in one earphone and program will be heard in the other earphone.
12. DISPLAYS: The **PEAK HOLD LED METER (37)** indicates the **MASTER OUTPUT (44, 56)** left and right channel levels. The individual channels each have their own **PREFADER INPUT LEVEL PEAK HOLD LED METERS (38)** which reflect the **GAIN (14), HIGH (15), MID (16),** and **LOW (17)** rotary control adjustments. The **CHANNEL SLIDES (19, 22, 24, 26)** will not effect the **PREFADER INPUT LEVEL PEAK HOLD LED METERS (38).**

## Specifications

### INPUTS:

Phono.....3mV 47Kohm

Line.....150 mV 27Kohm

### OUTPUTS:

Amp/Booth.....0 dB 1V 400ohm

Max.....20V Peak to Peak

Rec.....225mV 5Kohm

### MIC 1 & MIC 2:

DJ Mic.....1.5mV 2Kohm balanced

Bass.....± 12dB

High.....± 12dB

### MIC 3:

DJ Mic.....1.5mV 2Kohm balanced

Controls.....Channel 4

### GENERAL:

Bass (Chnls 1-4).....+ 12dB/- 26 dB

Mid (Chnls 1-4).....+ 12dB/- 26 dB

Treble (Chnls 1-4).....+ 12dB/- 26 dB

Gain (Chnls 1-4).....0 to -20dB

Frequency Response.....20Hz - 20KHz +/- 2dB

Distortion.....0.02%

S/N Ratio.....better than 80dB

Talkover Attenuation.....-16dB

Headphone Impedance.....16ohm

Power Source.....115/230V 50/60Hz 10W

Dimensions.....12.5" w x 3" h x 14" d

Weight.....10 lbs

## Parts Lists

### Cabinet Parts and Packing

Item #	Description	Part #
1	PANEL CONTROL	002-196
2	BRACKET VR	021-759A
3	PANEL REAR	021-972A
4	COVER BOTTOM	021-388A
5	HOLDER X-FADER	022-360
6	KNOB SWING (LONG)	023-674
7	KNOB PUSH (SMALL)	002-531
8	KNOB BUSHING (SMALL)	002-532
9	KNOB SLIDE (BIG)	002-713
10	KNOB INLAY (RED); GAIN	148-238
11	KNOB INLAY (BLACK); BALANCE,CUE LEVEL, XF ASSIGN, MIC, BOOTH	148-236
12	KNOB INLAY (GRAY); LOW, MID, HIGH, TREBLE, BASS	148-239
13	KNOB ROTARY (A)	003-122
14	KNOB ROTARY (B)	003-131
15	VR INLAY	003-970
16	COVER LED (M)	003-705
17	HOLDER LED (M)	003-706
18	COVER LED	003-707
19	HOLDER LED	003-708
20	PLATE DISPLAY (SMALL)	003-372
21	HOLDER LED 3f (7mm)	003-711
22	HOLDER LED 3f (17mm)	003-969
23	PROTECTOR PLATE FOR 115/230V SWITCH	022-305
24	PAD FOOT	049-206
25	GND SCREW	146-710
26	SCREEN (1)	046-022
27	SCREEN (2)	046-023
28	SCREEN	046-024
29	PCB SUPPORT	047-468
30	VR DUST PROOF CLOTH	159-205
31	SWING DUST PROOF CLOTH; (30mmx30mm,4f,T=0.3mm);88.1.5	159-216
32	EVA PAD	003-510
33	SNAP RIVET	003-612
34	PAN-HEAD MACHINE SCREW; PMS 2.6X4(B)	102-025
35	PAN-HEAD MACHINE SCREW; PMS 2X4(B)	102-007
36	BAND-HEAD TAPPING SCREW; BTS-3 3X6(AB)	111-046A
37	PAN-HEAD TAPPING SCREW/TWIN SCREW; PTS-2 3X6(AB) TWIN	110-176A
38	BAND-HEAD TAPPING SCREW; BTS-3 3X10(AB)	111-044A
39	BAND-HEAD MACHINE SCREW; BMS 3X2X4	107-015
40	FLAT-HEAD TAPPING SCREW; FTS-3 3X6(AB)	111-043A
41	FLAT-HEAD TAPPING SCREW; FTS-3 3X12(AB)	111-049A
42	NUT/WASHER	131-081
43	BAND-HEAD TAPPING SCREW; BTS-3 3X5(AB)	111-051A
44	BAND-HEAD TAPPING SCREW/TW-E; BTB-3/TW-3 3X6(AB)	121-003A

### Printed Circuit Boards

Item #	Description	Part #
1	PRINTED CIRCUIT BOARD CDM1000-1; IN/OUT (94V0 76x170mm)	162-917
2	PRINTED CIRCUIT BOARD BPM1000-2; MAIN (94V0 275x330mm) REV,A	162-981
3	PRINTED CIRCUIT BOARD 1500-3; MIC1 PCB	162-982
4	PRINTED CIRCUIT BOARD 1500-4; FADER	162-983
5	PRINTED CIRCUIT BOARD BPM1000-5; MIC 2,3 I/P PCB (94V0 74x153mm)	162-984
6	PRINTED CIRCUIT BOARD 1500-6; PHONE PCB	162-985
7	PRINTED CIRCUIT BOARD CDM1000-7; LED PCB (94V0 123x221mm)	162-923
8	PRINTED CIRCUIT BOARD BPM250-7	162-979
9	PRINTED CIRCUIT BOARD BPM250-8; BIT DISPLAY (CEM-1 41x166mm)	162-980

## Parts Lists - PCB1 Input/Output

### ICs

Item #	Designators	Description	Part #
1	IC4, IC5	INTEGRATED CIRCUIT NJM4558L	074-104
2	IC1, IC2, IC3	INTEGRATED CIRCUIT NJM2068LD	074-145

### Transistors

Item #	Designators	Description	Part #
1	Q1	TRANSISTOR 2SA1048 (2SA1317)	076-104
2	Q2-5	TRANSISTOR 2SC2878	076-095

### Electrical Parts

Item #	Designators	Description	Part #
1	D1, D2	SILICON DIODE 1N4148	079-003
2	SW1	SLIDE SWITCH LINE/PHONO SSSF122NA1-CE	081-027
3	J1-5	4P RCA JACK P=14mm	161-105

## Parts Lists - PCB2 Meter

### ICs

Item #	Designators	Description	Part #
1	IC2, IC3	INTEGRATED CIRCUIT HCF4066BE	074-040
2	IC1, IC4, IC5	INTEGRATED CIRCUIT BA6822S	074-148

### Transistors

Item #	Designators	Description	Part #
1	T1-12	TRANSISTOR 2SA1048 (2SA1317)	076-104

### Electrical Parts

Item #	Designators	Description	Part #
1	D25-28	SILICON DIODE 1N4148	079-003
2	D1-7, D13-19, D29-35, D41-47, D53-60, D66-73	LIGHT EMITTING DIODE (GREEN); 2.5x6.5 mm	080-079
3	D8-9, D20-21, D36-37, D48-49, D61-62, D74-75	LIGHT EMITTING DIODE (YELLOW); 2.5x6.5 mm	080-080
4	D10-12, D22-24, D38-40, D50-52, D63-65, D76-78	LIGHT EMITTING DIODE (RED); 2.5x6.5 mm	080-078

## Parts Lists - PCB3 XLR

### ICs

Item #	Designators	Description	Part #
1	IC3	INTEGRATED CIRCUIT NJM4558L	074-104
2	IC1, IC2	INTEGRATED CIRCUIT NJM2068LD	074-145
3	IC5	INTEGRATED CIRCUIT NJM7812FA	074-107
4	IC4	INTEGRATED CIRCUIT NJM7912FA	074-114

### Transistors

Item #	Designators	Description	Part #
1	Q1, Q2	TRANSISTOR 2SC2878	076-095

### Electrical Parts

Item #	Designators	Description	Part #
1	D1-8	RECTIFIER DIODE 1N4002	079-027
2	J5	PHONE JACK 6.3f	092-078
3	X8, X12	PHONE JACK XLR	092-118

## Parts Lists - PCB4 Main

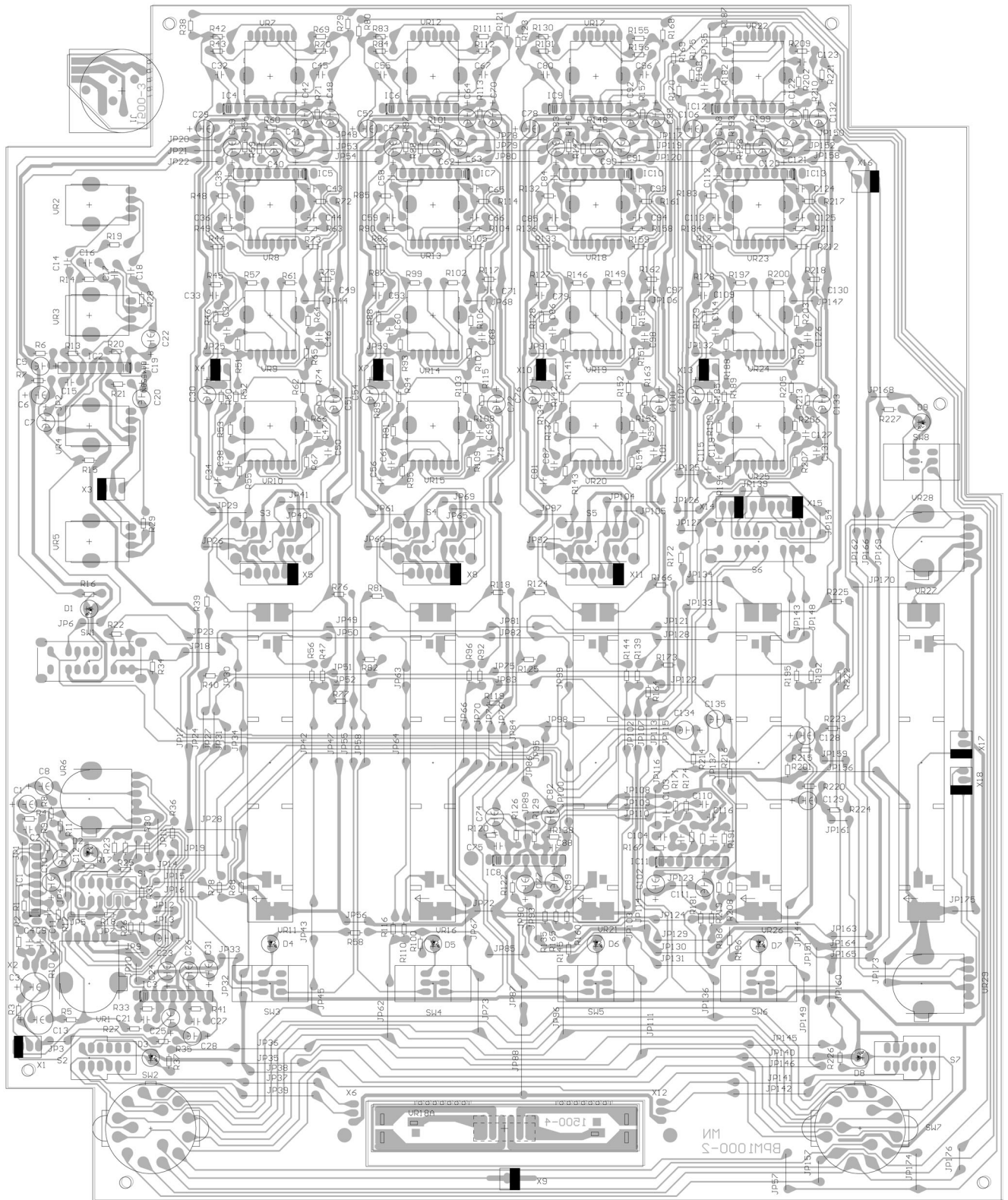
### ICs

Item #	Designators	Description	Part #
1	IC2-13	INTEGRATED CIRCUIT LA6458S	074-063
2	IC1	INTEGRATED CIRCUIT NJM4556L	074-113

### Electrical Parts

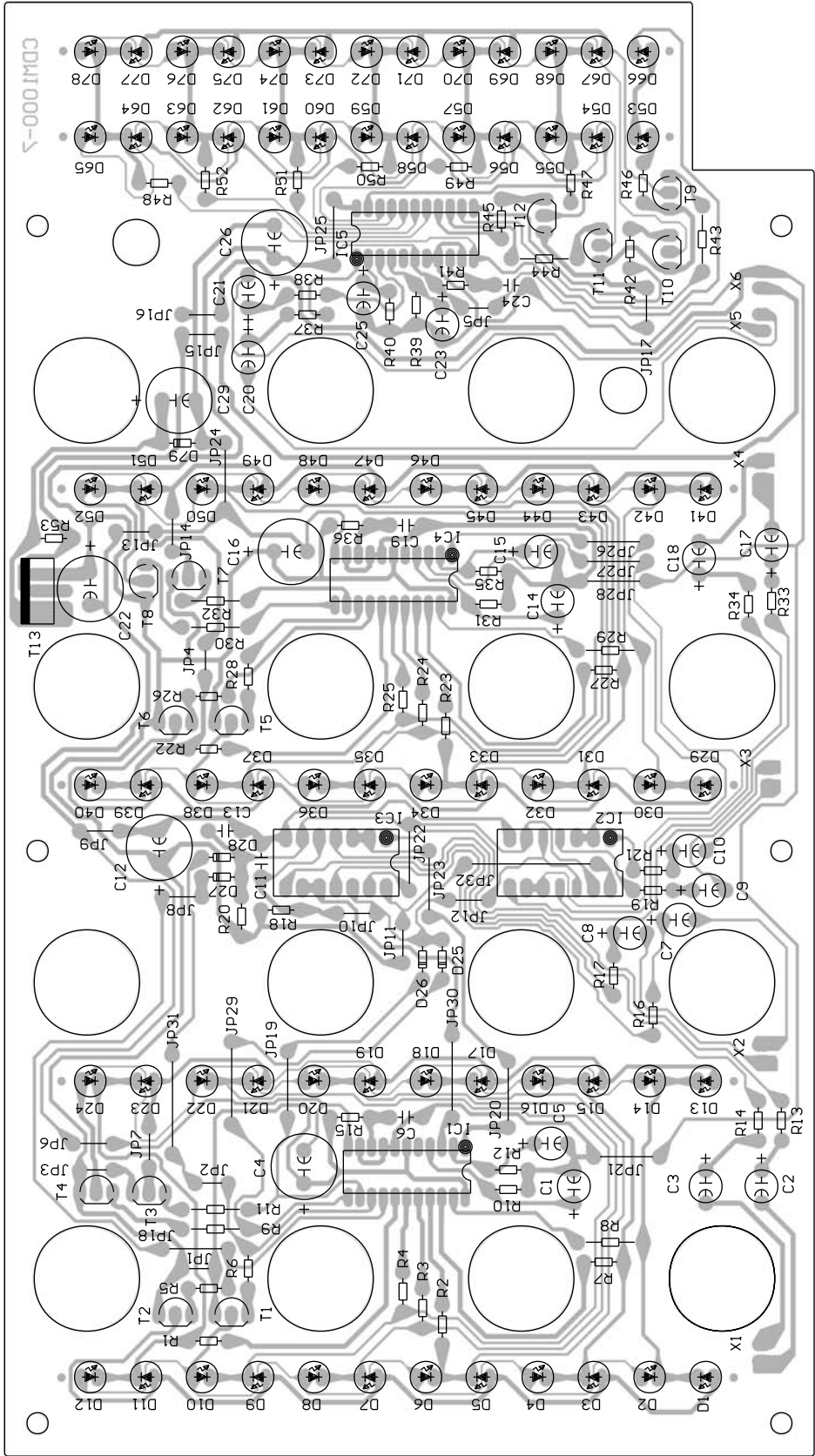
Item #	Designators	Description	Part #
1	S3, S4, S5	LEVER SWITCH 4P2C	082-019
2	S6, SW1	LEVER SWITCH 4P3C	082-022
3	SW3-4, SW6, SW8	PUSH SWITCH 2P2C L=12.5	083-069
4	S1, S2, S7	PUSH SWITCH 4P2C L=12.5	083-081
5	J1	PHONE JACK 6.3f+ XLR	092-090
6	D1-9	LED (RED) 3.15f	080-091
7	VR11, VR16, VR21, VR26, VR27	SLIDE VR 60mm L=20 10KAx2 CH VOL MASTER	072-101
8	VR6	ROTARY VR L=20 50KAx2 CUE LEVEL	071-119
9	VR28	ROTARY VR L=20 20KMNx2 C.C BALANCE	071-120
10	VR29	ROTARY VR L=20 10KAx2 BOOTH	071-122
11	VR1	ROTARY VR L=20 20KWx2 CUE, PGM	071-170
12	VR4, VR5	ROTARY VR L=22.5 10KB MIC1, MIC2	071-115
13	VR2, VR3	ROTARY VR L=22.5 10KB C.C HIGH, BASS	071-165
14	VR7, VR12, VR17	ROTARY VR L=22.5 50KAx2 CH1 3-GAIN	071-166
15	VR22	ROTARY VR L=22.5 50KWx2 CH4-GAIN	071-171
16	VR8-10, VR13-15, VR18-20, VR23-25	ROTARY VR L=22.5 50KEx2 C.C HI, MID, LOW	071-167

PCB4 - Main

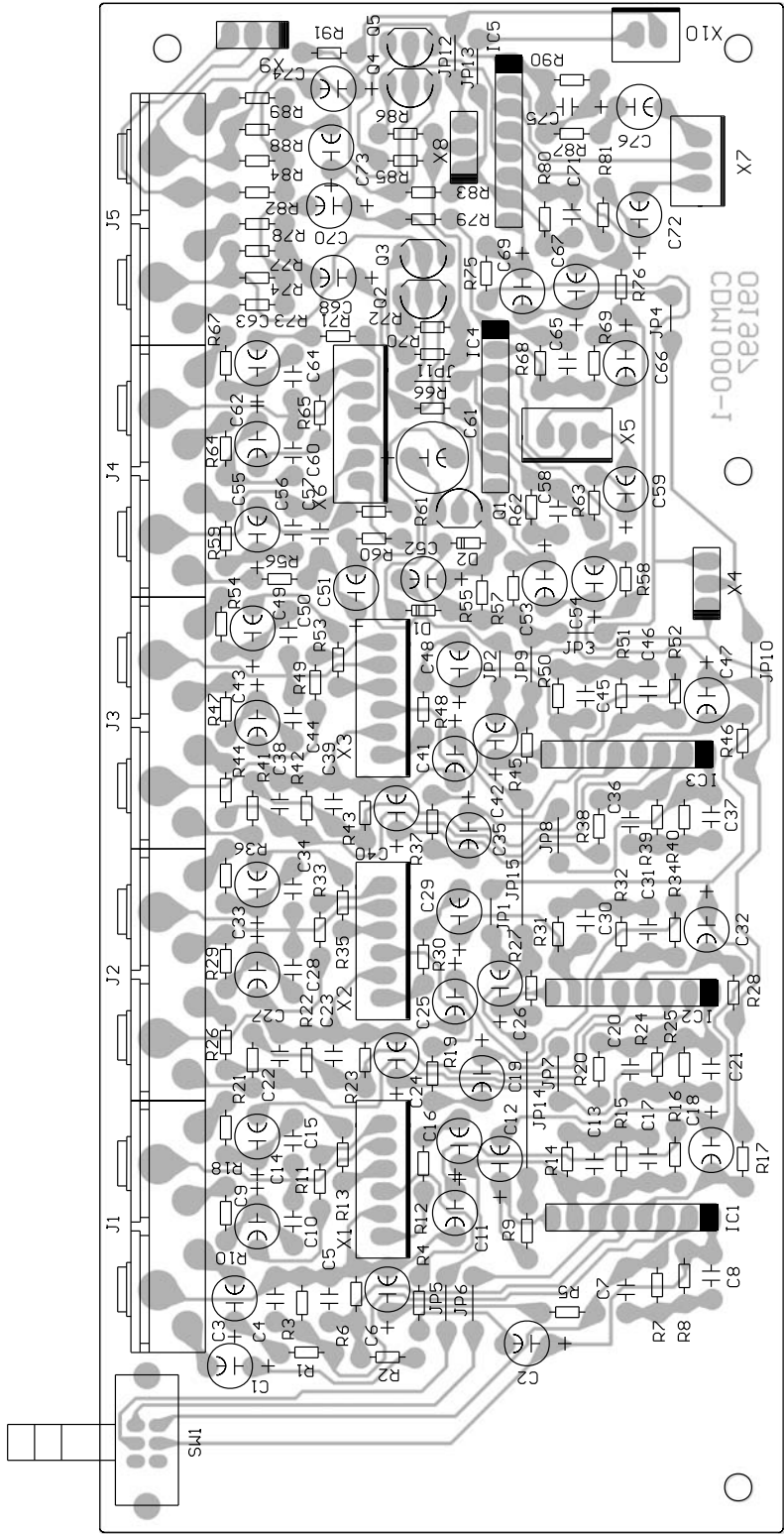


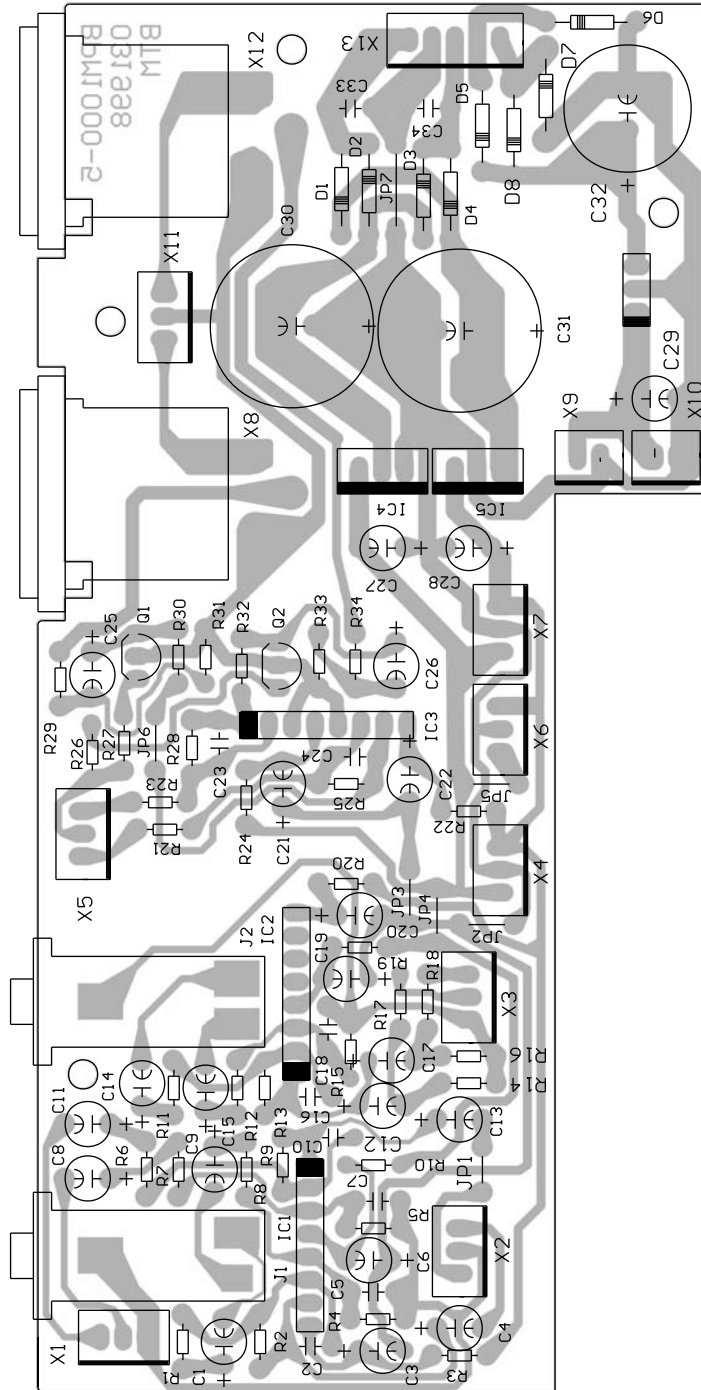


PCB2 - Meter

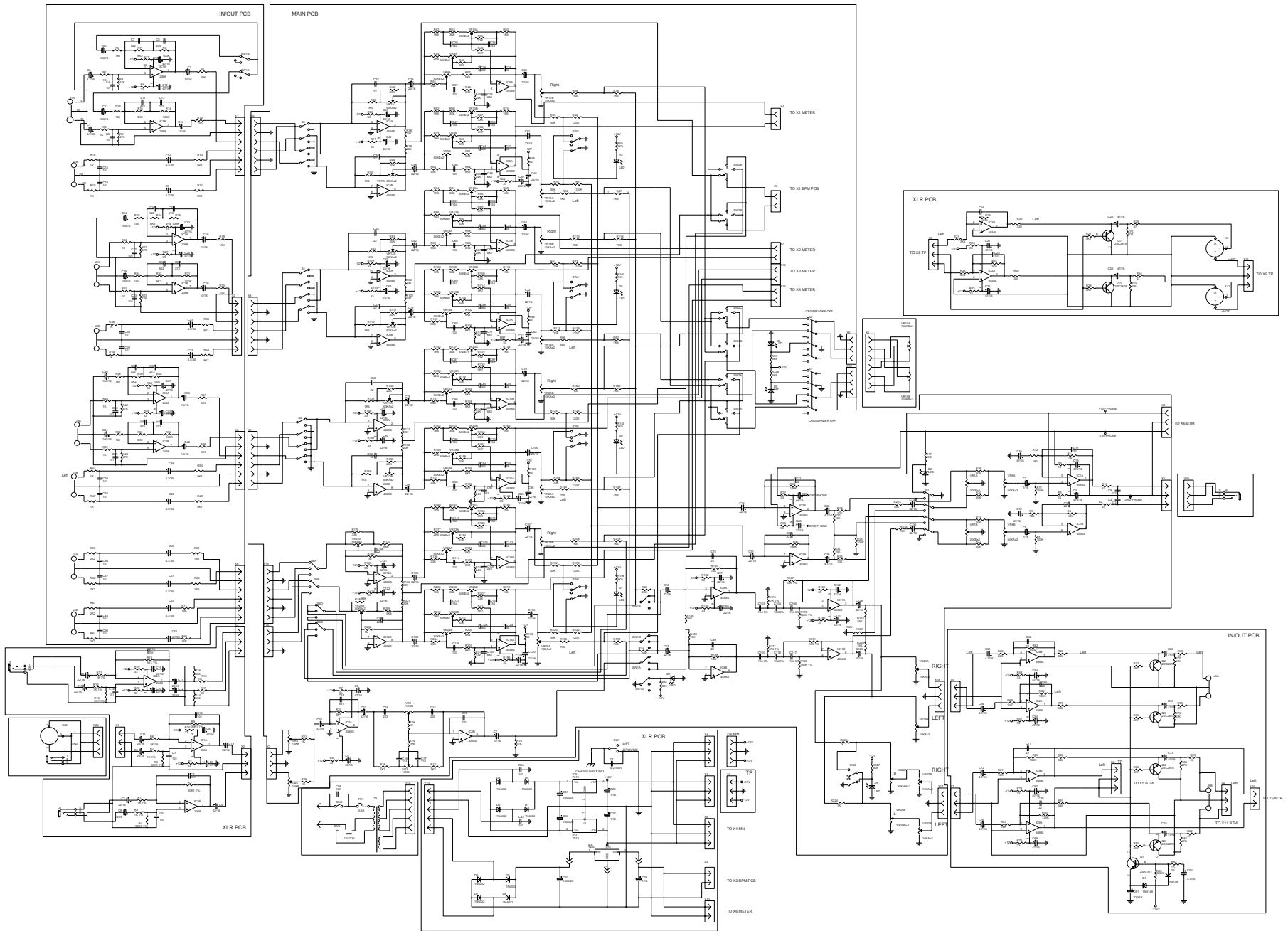


# PCB1 - Input/Output





Schematic



# Meter Schematic

## METER PCB

